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The Proceedings of this conference are intended to serve as a basis for further study, discussion, and action regarding the role of student-oriented institutional research in Florida colleges and universities. The first paper outlines the methods, dimensions, and benefits of studying student characteristics. The second paper traces the factors that led to the founding of the Student Information Record System project, its philosophy, potential, and applications for the transmission of student data. In the third paper, results are reported of a pilot study that explored the academic rehabilitation role of the community junior colleges in Florida. This study involved students who entered Florida State University as freshmen, experienced academic difficulties, transferred to community colleges, and returned to FSU after attainment of the associate of arts degree. The fourth paper describes Florida Southern College's use of the College Level Examination Program in admission of upper level students. The next paper delineates technical problems of preparing computer printouts of survey data and describes the present and future use of such data. The sixth paper discusses the role of the recently founded Interinstitutional Research Council of the University of Florida. In the final paper, some of the methodological problems encountered by researchers studying the impact of colleges on students are reviewed and approaches suggested to this type of research. (JS)

ED0 30394

INSTITUTIONAL RESEARCH AND THE STUDENT

PROCEEDINGS OF THE FIRST
STATEWIDE INVITATIONAL CONFERENCE
ON INSTITUTIONAL RESEARCH

LAKELAND, FLORIDA
1968

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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PREFACE

Publication of the proceedings of the Statewide Invitational Conference on Institutional Research is intended to document the activities of the Conference and thereby serve as a basis for further study, discussion, and action regarding the role of institutional research in Florida colleges and universities.

The theme of the conference was Institutional Research and the Student. Seven papers were presented, each relating to a significant aspect of the theme. At the request of the planning committee, the Conference was opened with a paper that outlined the methods, dimensions, and benefits of studying student characteristics. In the second paper, Dr. Henry C. Fox traced the factors prompting the founding of the Student Information Record System Project, its philosophy, potential, and applications for the transmission of student data. In the last paper of the first session, Mr. James A. Carter presented the results of a pilot study that explored the academic rehabilitation role of the community junior college in Florida.

At the beginning of the second session of the Conference, Dr. Richard Burnette described Florida Southern College's use of the College Level Examination Program in admission of students to the institution's upper level. He was followed by Dr. William M. Hunt who presented some of the technical problems involved in preparing computer printouts of the survey data as well as the present and future uses of the survey information. Dr. James L. Wattenbarger, discussed the role of the recently founded Inter-Institutional Research Council of the University of Florida. Dr. Robert Stoltz, in the final paper, reviewed some of the methodological problems the researcher encounters in studying the impact of colleges on students and suggested some approaches to this type of research.

We are indeed grateful to the conferees, not only for coming to Lakeland in such large numbers for this initial conference , but for paying for the proceedings in advance, enabling the chairmen to meet unexpected conference expenses. To the speakers who responded so promptly to our call for papers, and to James Carter, who both gave a paper and edited the proceedings, we are deeply appreciatative. To Dr. Charles T. Thrift, our gracious host for a dinner meeting, we are especially indebted.

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SURVEYING THE CHARACTERISTICS OF STUDENTS IN FLORIDA INSTITUTIONS OF HIGHER EDUCATION

Dr. G. Emerson Tully
Director of Educational Research
Florida Board of Regents

When Florida State College for Women was reorganized in 1947 to become Florida State University, student personnel services were grouped administratively under a Division of Student Welfare. The choice of this divisional name for the program of student affairs reflected a service-oriented concept toward students that prevailed in higher education in the post-World War II period. Today, student affairs programs throughout the country are giving relatively less emphasis to custodial care provided by the institution to the students, and relatively greater emphasis to the way that students learn and develop on a college campus.

The manner in which young people learn and develop is to a large degree a function of their past learning and development. Astin, in a recent study on undergraduate achievement and institutional "excellence" concluded that differences in student achievement during the senior year were much more highly dependent on variations in student characteristics that existed before entrance into college than upon the characteristics of the undergraduate college attended.[1] The implication of Astin's research is obvious; colleges and universities must show awareness of the characteristics possessed by the students if the learning process is to be facilitated.

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[1] A. W. Astin, "Undergraduate Achievement and Institutional Excellence," Science, CLXI (August, 1968), 661-68.

What do we mean by the term "student characteristics" and how are we going about obtaining student characteristics data here in Florida? It is to these two questions that I shall address myself in this opening session.

The factors, both physical and non-physical, that make a student like he is may be termed his characteristics. Age, sex, height, weight, state of health, and race are obvious physical characteristics. Academic ability, intellectualism, socioeconomic status, social and political attitudes, attitudes toward others, and toward authority, are examples of non-physical characteristics. The full range of non-physical characteristics would indeed be lengthy; named here are only a few that have been studied recently as they relate to the learning process.

How do we identify a student's characteristics? In the case of physical characteristics, it is a matter of measure or documentation. Non-physical characteristics, in contrast, cannot be identified easily and are less easily measured. In fact, some degree of difficulty is sometimes encountered when an attempt is made to define a non-physical characteristic. An example of an often discussed non-physical characteristic that defies easy definition is intelligence.

Test specialists have gone ahead with devising measurement instruments despite the lack of availability of universally accepted precise definitions of student characteristics. In the measurement of some non-physical characteristics, the test designers have achieved considerable success. I refer particularly to developments in the assessment of academic potential and academic achievement. Although problems still confront the mental measurement specialists, tests of academic ability and previous achievement constructed in keeping with rigorous technical standards are widely available. Later in this conference, Dr. Burnette will describe the use made of such a test, the College Level Examination Program, at Florida Southern College.

Turning again to the measurement of student characteristics by non-test methods, the difficulties are cast into perspective by a review of the approaches available to the researcher. One can obtain a good view of a student's array of characteristics if he can observe the student frequently and not be seen by the student. Except in clinical settings, this approach is not feasible. One can also measure a student's characterictics by asking the student to respond to a set of questions or statements that are intended to elicit responses along a continuum. If the statements are ambiguous or if the statements awaken hostility and resentment on the part of the student, the measurement process is impeded. Despite these ever-present measurement problems, attitude inventories are widely used in counseling and guidance, employee selection, in personality research, especially with college students as subjects. Attitude scales are not too frequently used in college operations such as admissions; the appeal of the student to answer the items in a way that puts him in the most favorable light is so great that the validity of the scale is eroded. In short, self-report attitude measures of student characteristics are of limited value when the student has something at stake.

Newcomb points out that there are two loci of change; one in the student, the other in the institution.[1] If we assume that going to college produces change in the student, we must need to know something about the student before the change process begins. And, as the students change themselves, they in turn produce changes in the institutions. Describing the procedures and methods by which this complex interaction takes place is not only beyond the scope of this paper but beyond my competence as a researcher, so I'll return to discussing the problem of the identification of student characteristics as a basic step in the process of assessing changes that occur, either in the student or in his campus environment as he works toward his degree.

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[1] Theodore M. Newcomb, "Research on Student Characteristics: Current Approaches," in The College and The Student, ed. by Lawrence E. Dennis and Joseph F. Kauffman (Washington, D. C.: American Council on Education, 1966), pp. 101-116.

There are several dimensions to the study of student characteristics. One dimension is illustrated by a study by Trow and his associates which has led these researchers to postulate four student types: the vocational, the academic, the collegiate, and the nonconformist.[1] Pace and Stern's in-depth studies of the motivational characteristics of students and the variations in the academic atmospheres of campuses and sub-campuses represent another dimension.[2] Still another dimension is the work of Knoell and Medsker comparing junior college transfer student with "native" students in four-year institutions.[3] In Florida, with its carefully planned and superbly implemented system of community colleges, the research of Knoell and Medsker has attracted wide attention. Mr. Carter, later today, will report on his research which falls generally within the Knoell-Medsker type of study.

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[1] Martin Trow. "Student Cultures and Administrative Action," in Personality Factors on the College Campus, ed. by R. L. Sutherland et al. (Austin, Texas: The Hogg Foundation for Mental Health, 1962).

[2] Robert C. Pace and George G. Stern. "An Approach to the Measurement of Psychological Characteristics of College Environments." Journal of Educational Psychology, (October, 1958), 269-77.

[3] Dorothy M. Knoell and Leland L. Medsker. Factors Affecting Performance of Transfer Students from Two-to Four-year Colleges with Implications for Coordination and Articulation. U. S. Department of Health, Education, and Welfare, Office of Education, Cooperative Research Project No. 2167 (Berkeley: Center for the Study of Higher Education, University of California, 1964).

In Florida, except for the work of Barger, Lynch, and Clark at the University of Florida, little if any theoretically oriented student characteristic research has been done. The continuing survey of student characteristics being conducted in Florida, now in its third year, may well serve the function of ushering in research dealing with theoretical conceptualizations. If so, the survey project will have justified its existence.

Just what is the purpose of the survey of student characteristics which is now conducted in all the public institutions of higher learning in Florida and in some private institutions? What information is obtained and how is the information put to productive use? A brief content analysis of the instrument reveals its purpose. Items seek information in the following areas: the family (level of education of parents, income, capacity of the family to pay for the student's college expenses), admissions (number of applications filed, reasons for selecting institution of choice), previous educational background, and educational plans (course of study, highest degree to be sought). No attempt is made to gather information about out-of-class activities, obtain self-ratings, identify personal traits or measure attitudes or beliefs held. The survey instrument yields, then, a student profile consisting of selected biographical and socioeconcomic data, long range educational plans, and immediate educational intentions.

The responses of students to these questions give the institution in which they are enrolled a general picture of its students. An institution may take a cross-section view of its students and study its enrollment mix or it may take a longitudinal view and establish trends in the enrollment of students by age, sex, program choice, etc. The assessment of enrollment changes, especially by the newly established institutions that are in the survey, should constitute a major component of education role and scope self-study by the institutions in the years ahead.

Whether the participating institution is new or long existing, the survey data should put a floor under the institutional research program. Indeed the basic purpose of the survey is to support institutional research. The Florida survey, then, in contrast to the studies cited earlier, is service-oriented, and not at present theoretically oriented. It is intended to facilitate institutional research, not at the level of advancing theoretical concepts, but at the level of providing institutional research officers with an array of data that can be of value in assessing the operational aspects of their institutions. The survey is also intended to provide data that relate to long range educational planning on a statewide basis.

Planning of the project to identify the characteristics of new students entering higher education in Florida was initiated by the Office of the Board of Regents in the fall of 1965. In that year, a committee of institutional research officers in the state universities built a 20-item instrument designed to allow entering students to report basic biographical data as well as their educational plans. The University of Florida, Florida Atlantic University, and the University of South Florida were already conducting studies of their entering new students. Items were pooled from existing instruments to construct the questionnaire for use throughout the State University System.

A tryout administration was held in the spring of 1966. Not only was the tryout instrument reviewed by the institutional research officers in the public universities, but it was also informally reviewed by guidance personnel in Tallahassee Junior College. The expressed interest of this latter group in participating in the survey led to discussions with Dr. James Wattenbarger, at that time the Director of the Division of Community Colleges, concerning the participation in the survey of other community colleges that were opening in the fall of 1966. The final decision was to administer the survey in the existing public universities and the five new community colleges in the fall of 1966. In that year, 10,297 in the ten participating institutions were surveyed.

As you know from your program, Dr. Wattenbarger, who is now the Director of the Institute of Higher Education, University of Florida, will speak before this group to describe an emerging institutional research council for the community colleges.

In the fall of 1967, there were 35 participating institutions: six public universities, 27 community colleges, and two private institutions, with a total of 32,130 participating students in the fall of 1968, the number of participating institutions rose to 38. We estimate that the total number of students surveyed in 1968 will reach 39,000.

The expense of this continuing survey is borne jointly by the Board of Regents and the Division of Community Colleges. Students mark their responses on answer sheets that are scored by optic scanner equipment at Florida Atlantic University. Computer runs are made at Florida Atlantic University under the direction of Dr. William Hunt to obtain printouts of the results for return to the participating institutions.

You will hear from Dr. Hunt tomorrow so I will not describe his work in any further detail, except to say that he also provides the Board office with systemwide printouts. Results of the systemwide analyses are communicated to participating institutions in the Research Notes series of the Board.

The survey instrument being used here in Florida is similar to other well-known questionnaires designed to survey student characteristics, but there are important differences in the instruments. I will now briefly compare the Florida instrument to the ones developed by the American Council on Education, the American College Testing Program, and Educational Testing Service to point out the differences.

The American Council on Education has for several years conducted a program of longitudinal research in higher education. Participating institutions are asked to administer a student information form to their entering students. Included in the form are items relating to basic biographical data, high school grades, out-of-class school accomplishments, long range educational plans, financial resources, and reasons for college choice. Students are also asked to cite their probable career occupation, to rate themselves on selected personality traits, and to report their degree of participation in non-classroom activities. Results of this continuing survey, reported by Panos and Astin, may be obtained from the American Council on Education.

Several Florida institutions take part in the ACE study: Lake City Junior College, Rollins College, University of Tampa, and Florida State University, and there may be others. I understand that Florida Technological University may join the study.

Two of the major testing services, Educational Testing Service and the American College Testing Program, have constructed student characteristic survey instruments. ETS publishes the College Student Questionnaires designed to study student attitudes and background characteristics. A salient feature of the ETS instrument is that it is available in two parts: Part I for use with entering students, freshmen and transfers, and Part II, for enrolled undergraduates toward the end of the academic year. The questionnaire contains items about student activities, perceptions, and satisfaction of the student with the institution in which he had enrolled.

The ACT includes a Student Profile Section in the forms relating to the test battery itself. Future vocational role, level of education, family data, including income, college housing to be sought, high school information, reasons for college choice, and high school achievements are among the items included in the profile. Although the items call for an expression of choices, the items are not designed to measure attitudes and perceptions. A series of research reports based on the profile information are available from ACT. Also, schools that use the ACT are provided profiles of their students by the American College Testing Program.

Despite the similarity of the statewide survey in Florida to the ACE nationwide survey, as well as the overlap among the Florida instrument and the other two questionnaires, the Florida project is unique in its origin, its function, and its purpose. To my knowledge, there is no other project of similar design and dimensions financed and conducted at the state level.

To insure this degree of comprehensiveness throughout the state, we have had to restrict the range of information called for by the 20-item questionnaire. As things stand now, however, our challenge is to use the data optimally once they have been used.

As to the future of the survey, I surmize that the project will, in all likelihood, continue in its present design for the next several years, except for expanding to include additional private institutions.

There is a need for an additional form of the survey instrument. At the present time there are two forms: one for new students, freshmen and transfers, entering the four-year institutions and one for new students, freshmen and transfers, entering the community colleges. A third form to be designed especially for the entering transfer student is expected to yield useful information about these students, now a major component in the enrollment of practically every college or university. Dr. John McQuitty, Mr. John Losak, Mr. Ivey Burch, and Dr. Eugene Schmuckler have agreed to work with the Board staff in developing this new form for transfers.

Research at the institutional level should be intensified. Both Dr. Hunt and Dr. Stoltz will explore ways at tomorrow's session by which the survey data can be used in assessing significant educational problems by the institutional research officer. Once again, may I say that our research staff will be happy to review research reports generated on the campuses for publication by the Board office. We publish brief studies in the Research Notes, as well as longer reports in our series of research studies.

Looking further ahead, the gathering of some of the survey data into an information system being developed for the state universities seems likely. Even if this development occurs, the survey project in somewhat of its present design will continue, especially in the community colleges, until an information network is established for them.

The reporting of educational plans and related data by the students, however, is an aspect of the survey that may elude being placed in an information system. What may occur four of five years from now is a modification of our basic survey instrument--instead of being 20 items, it may be shortened to 10 items. In such an event, perhaps the questions and the response positions can be printed on a machine-scoreable answer sheet. Administration of the survey would be expedited, inasmuch as the person in charge would not have to distribute both a questionnaire form and an answer sheet, but only the single sheet with items and response positions.

Earlier this fall, a survey instrument titled Plans Beyond High School became a part of the Florida Statewide Twelfth Grade Testing Program. The items and the response positions appear on a single sheet that can be scored by an optic scanner. The future student characteristics survey instrument may come to resemble the high school survey form, especially if the entering students survey in the future is focused principally on the educational plans of the students.

Dr. Henry Fox, Project Director of the Student Information Record System, who will speak later this afternoon, will describe the progress being made toward an exchange of student data between the high school and the institution of higher learning. There is no question but that the SIRS project will add to the usefulness of the survey data, and the survey data in reciprocal fashion, will heighten the research value of the information yielded by the SIRS project.

Except for a full tryout of the original survey questionnaire and a revision of the form each year to implement suggestions from the participating institutions, no great amount of study has been made of the technical features of the instrument. I refer to its validity and reliability. There is a need for follow-up studies to gather the necessary data to determine the degree to which respondents actually do what they say they are going to do, and the consistency with which they report biographic data and other information.

Summary.--An attempt has been made to outline new directions that are emerging in studying the student and his college environment. A survey of the characteristics of students entering higher education has been described, and viewed against the background of the efforts of some researchers to postulate types of students and types of learning environment. In this perspective, the survey being conducted in Florida is seen as providing institutional research officers with basic data for evaluating some aspects of higher education, but not as contributing to the development of theoretical concepts.

Despite its limitaions, the project is believed to be of significant educational value. In closing, I will list benefits that we hope will accrue from the survey:

1. To identify trends and relationships existing among new students enrolling in higher education in Florida.
2. To obtain data to support institutional research and planning in the colleges and universities participating in the project.
3. To promote cooperative planning among junior colleges and baccalaureate degree-granting institutions.
4. To further the assessment of institutional role and scope by participating institutions.
5. To provide information for long range educational planning at the state level.

THE STUDENT INFORMATION RECORD SYSTEM PROJECT-- A PROGRESS REPORT

Dr. Henry C. Fox
Project Director
Student Information Record System

For some of you here this afternoon this information will not be new. We are grateful to you folks for the assistance that you have provided in the early days of the SIRS Project and trust that you will bear with us if we repeat known information.

For the benefit of those who are not familiar with SIRS, it is an acronym for Student Information Record System. It is a multi-county project financed through Title III of the Elementary and Secondary Education Act. In a nutshell, the project is funded to establish an electronic record of student information and to show the applications of that record for the improvement of educational service in the public schools of Florida.

Before discussing where we are today with student information, or where we expect to be in the near future, it is interesting to take a look at where we were only six years ago. At that time no public school system in Florida had a computer although some student information applications were being mechanized on unit record equipment. It should also be noted that the first computer capable of electronic storage was installed in a public school system only three years ago. In this short span of time, over 80 per cent of the student enrollment of Florida is now enrolled in schools in counties having access to computers. When we consider this fantastic growth over a six-year period, it would require a crystal ball to predict the status six years from now.

When we listened to the prophets of the future a scant few years ago, none of us believed that in 1968, public school systems would have their own large core memory computers capable of maintaining on-line the records of hundreds of thousands of students, or that some of our schools in Florida would be communicating computer to computer, and would be having records retrieved on cathode ray tubes.

Because of these developments in the immediate past, and anticipating a similar rate of increase in innovations in the near future, it is essential that immediate action be taken to reach agreements of policies of standardization with special reference to transmittal and exchange of data. It was in recognition of this need that SIRS Project was funded.

As originally conceived, the SIRS Project was to have been organized under the leadership of the State Department of Education. However, since Title III projects are local education agency oriented, it was not possible for the State Department to assume this role. Dade County was selected to be the administering county, and the project administration theoretically reports directly to the Dade County Superintendent.

Basic policy of the project is established by a Steering Committee composed of one representative from each county, one from the State Department of Education, and one from the Florida Association of Educational Data Systems (FAEDS). The Steering Committee has two satellite Committees; the Users Committee and the Technical Committee. As the name implies, the Users group consists of non-technically oriented individuals who are the ones who will be responsible for producing and for using the information. Included are administrators, teachers, guidance personnel, and clerical personnel. The Technical Committee is made up of systems people and programmers.

The basic philosophy of the SIRS record is to permit a high degree of autonomy for local units to select tests, the type of norm used for recording scores, the method of grade reporting, the pattern of organization for the schools, and the items of data which will be collected. The code and field structure adopted provides for a wide variety in the above areas. What is required is that once a method is selected, the data must be recorded in the format provided by the system. This differs radically from other proposed state systems which mandate a specific method for collection of all data.

The originally proposed record consisted of six blocks of 500 fixed positions. The six blocks were:

1. Personal Information
2. Enrollment
3. Standardized Tests
4. Elementary Academic
5. Secondary Academic
6. Miscellaneous Non-Academic

This has since been changed to a variable length record, greatly reducing the amount of blank area in the fixed length blocks. The new record contains all the information of the old record but presents it in a more efficient format.

Originally, code and field structure were identified in the Linear Record document. This has been replaced by the Student Data Index. A sample page of the Index is presented in appendix A. This index identifies all items of student information which might be recorded. In addition to the identifying title and description for each item, the index specifies the field length, and required coding and COBAL name. It also gives the priority rank assigned by the Users group to the importance of gathering this item of information and specifies if the item is to be included in the transmittal record.

Data are transmitted by two means. A manual record known as the Florida Student Report serves as a standard transcript for hard copy interchange of data. The transmittal record will serve as an electronic format for either tape or direct teleprocessing (see Appendix B).

In order for data to be exchanged electronically, it is necessary to convert to a standard format. This is being done through the Translating Center located in the State Department of Education in Tallahassee. As you can see on the data flow chart in appendix C, it is necessary to be able to accept the even-parity seven-channel tape from the Honeywell 200 in Pinellas County, the odd-parity seven-channel tape from the 1401's in Sarasota and Hillsborough Counties, and the nine-channel 800 bpi density 360 tape into the nine-channel 1600 bpi tape used in the State Department of Education. Mohawk converters in the State Department are used for this latter conversion. The Translating Center computer does have a tape drive capable of accepting the seven-channel information from the other counties. A similar procedure will be used to transmit data back and forth between the counties and the universities.

In addition to producing the hard copy and transmittal record, each county is committed to demonstrating the application of these records to the improvement of the school program. Obviously, data are of no value unless they can be applied. Therefore, each county has been given a specific area of specialization for demonstrating such applications. These are:

Dade - Guidance and on-line research
Hillsborough - Attendance
Pinellas - Testing
Sarasota - Curriculum

In addition to these special applications, you who are specialists in research can appreciate the vast potential which this information in electronic format presents. This will be especially true as methods are developed for interchange of data between the K-12 program and the junior college and university system. A representation of record relationships is shown in appendix D. For this research to be more effective, studies should be initiated in the near future to produce two types of recommendations:

1. Determining what information should be transmitted from one echelon to the other; and
2. Establishing standard fields, codes, and records for such a transfer.

Some preliminary agreements have already been reached on the first. The Florida Student Report has been accepted as a uniform hard copy transcript and the SIRS Transmittal Record stands as a uniform K-12 electronic record.

Some of those present today attended a conference at Chinsegut Hills to develop a procedure for a return flow of information to the high schools on the success of their graduates as freshmen in your institutions. To do this, all freshman courses were coded according to difficulty level. The difficulty level is a five-point scale with mid-point 3 representing the difficulty level of the typical course taken by an entering freshman at the university level. This provides a common denominator for the many titles and course codes used for approximately the same course in the various institutions. This not only gives a more intelligible feedback to the high schools, but also provides a means for combining the grades from the various institutions.

An example of data used for a pilot group at Miami-Dade appears in appendix E. A distribution of grades for the typical university parallel course is shown here as English III. In addition to the over-all total, the distribution for each quartile of ability as measured by the Florida Statewide Twelfth Grade Tests is also given. This data will have value not only for curriculum studies but should also prove helpful to guidance counselors in helping their counselees to select the proper institution and program of studies.

The Florida Student Report and the Chinsegut Conference feedback plan are only beginning steps, but they do establish a pattern for cooperative action.

On the second point of establishing standard fields, codes, and records, the SIRS Student Data Index is an example of standardization in a limited area of K-12 data. The Florida Association of Educational Data Systems is applying for a planning grant to explore possibilities of a more comprehensive Educational Information System. Since many system studies are currently being inaugurated, it is imperative that basic agreements be reached in the near future or we may pass the point of no return. I hope you will lend encouragement to this FAEDS study.

The following publications are available from the SIRS Project, 3535 N. W. 79th Street, Miami, Florida, 33147:

1. Report of SIRS Project, June 15, 1967 - December 31, 1967
2. Coordination of the SIRS Project with Higher Education
3. Computer and Educational Applications Survey
4. A Manual for Computer Scheduling (GASP-CLASS)
5. Standards for Documentation
6. System Documentation Package for Production of the Florida Student Report
7. Report of SIRS Project, January 1, 1968 - June 30, 1968
8. Organizational Responsibilities Manual
9. Student Data Index

APPENDIX A

S C P T

6121.00

ACADEMIC COURSE CODE ACD-CRSE-CD 04 N 1 Y

The code to identify the specific course or skill area for which the performance evaluation is given.

Code Values
Elementary = See Appendix
Secondary = Use the codes presented in the latest State Accreditor.

6122.00

ACADEMIC COURSE TITLE ACD-CRSE-TITL 09 A 1 Y

The abbreviated Title of the course or skill area for which the performance evaluation is given.

Code Values
Elementary = See Appendix
Secondary = Use the abbreviations contained in the latest State Accreditor.

6123.00

ACADEMIC GRADE IN SCHOOL ACD-GR-IN-SCH 02 N 1 Y

The grade level at which the academic performance evaluation is given. Applies to a school operating on a grade level basis.

Code Values
01-12 = Grade level 1-12
00 = Non-Graded school

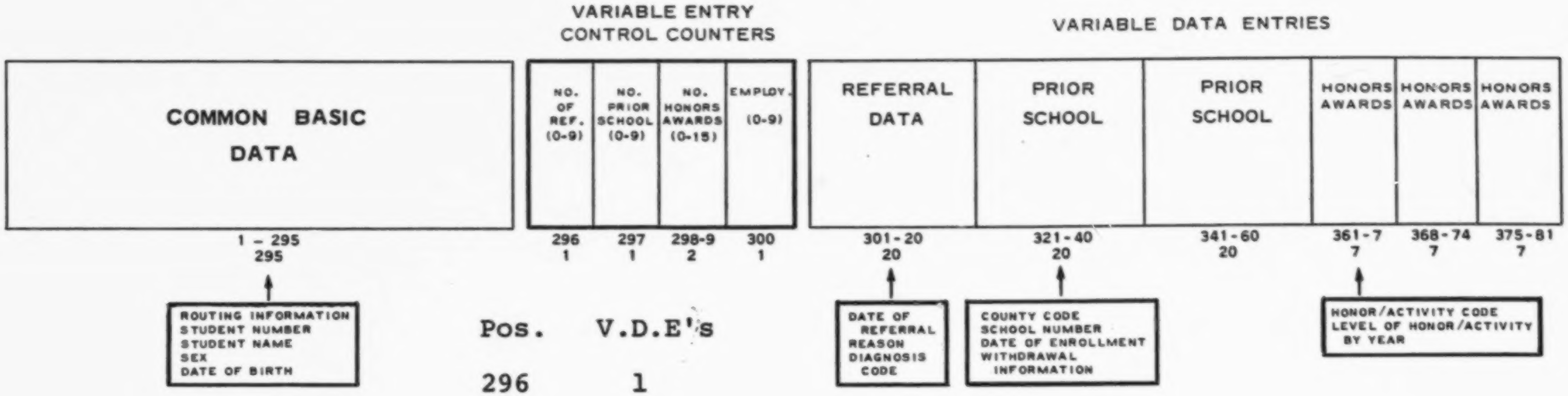
6129.06

ACADEMIC GRADE POINT AVERAGE ACD-GPA 05 N 1 N

The academic grade point average on grades received for only academic subjects. These are those courses whose high order positions are 1X-Language Arts, 2X-Math, 3X-Science, 4X-Social Studies, and 50 thru 54-Foreign Languages.

Code Values
Refer to Item 6129.05 Total GPA for formula.

APPENDIX B


VARIABLE ENTRY CONTROL COUNTERS
VARIABLE DATA ENTRIES
COMMON BASIC DATA
1 - 295
295
NO. OF REF. (0-9)
296
1
NO. PRIOR SCHOOL (0-9)
297
1
NO. HONORS AWARDS (0-15)
298-9
2
EMPLOY. (0-9)
300
1
REFERRAL DATA
301-20
20
PRIOR SCHOOL
321-40
20
PRIOR SCHOOL
341-60
20
HONORS AWARDS
361-7
7
HONORS AWARDS
368-74
7
HONORS AWARDS
375-81
7
ROUTING INFORMATION
STUDENT NUMBER
STUDENT NAME
SEX
DATE OF BIRTH
DATE OF REFERRAL
REASON
DIAGNOSIS CODE
COUNTY CODE
SCHOOL NUMBER
DATE OF ENROLLMENT
WITHDRAWAL INFORMATION
HONOR/ACTIVITY CODE
LEVEL OF HONOR/ACTIVITY BY YEAR

Pos.	V.D.E's
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297	2
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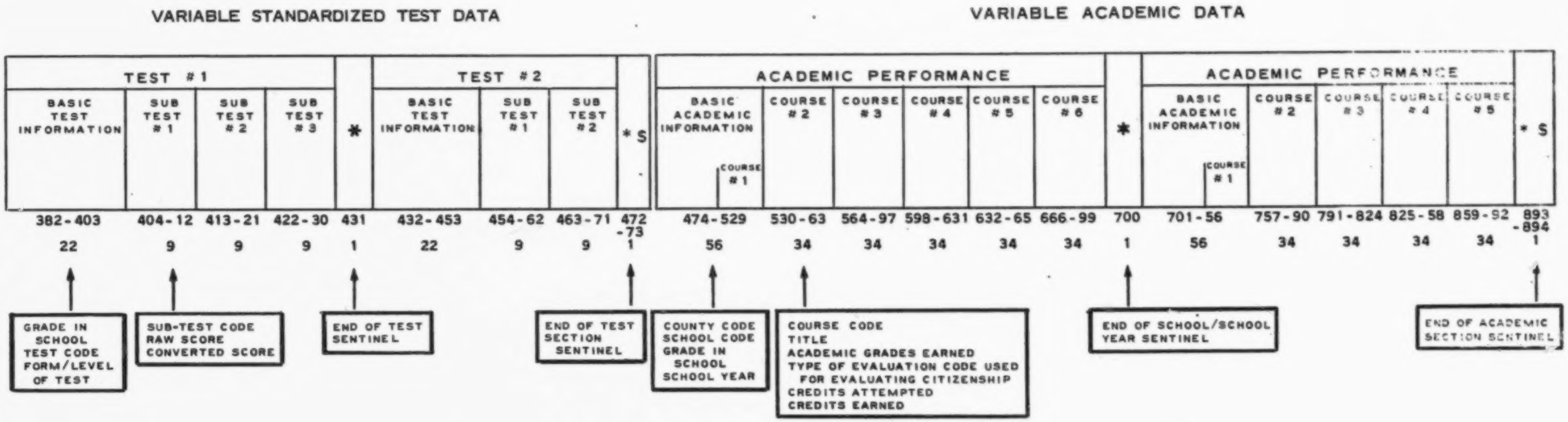
300	0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SUB TEST #2
463-71
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TEST CODE
FORM/LEVEL OF TEST
SUB-TEST CODE
RAW SCORE
CONVERTED SCORE
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END OF TEST SECTION SENTINEL
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ACADEMIC PERFORMANCE
BASIC ACADEMIC INFORMATION
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COURSE #3
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COURSE #4
598-631
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COURSE #5
632-65
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COURSE #6
666-99
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BASIC ACADEMIC INFORMATION
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COURSE #2
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COURSE #5
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*$
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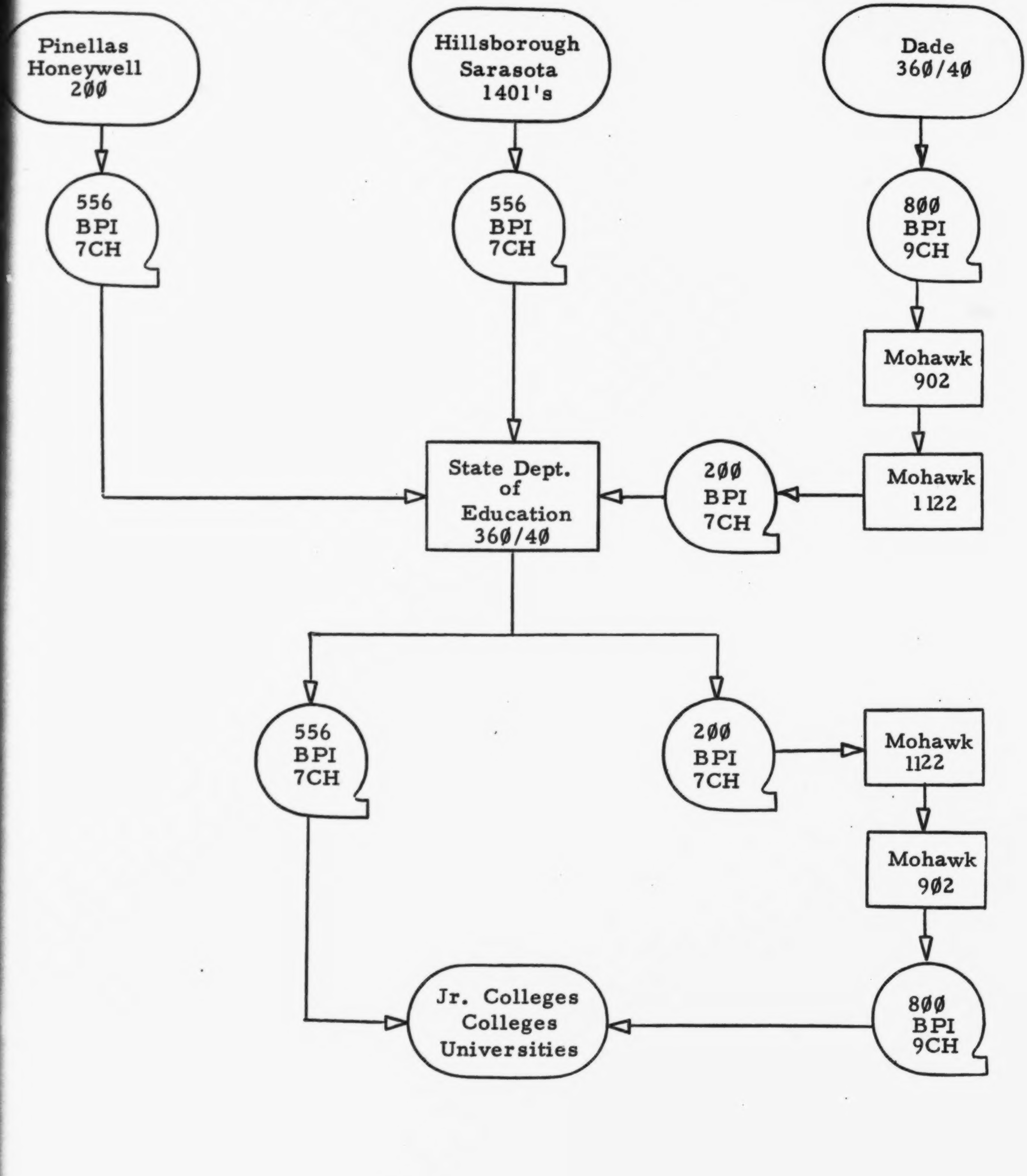
COUNTY CODE
SCHOOL CODE
GRADE IN SCHOOL
SCHOOL YEAR
COURSE CODE
TITLE
ACADEMIC GRADES EARNED
TYPE OF EVALUATION CODE USED FOR EVALUATING CITIZENSHIP
CREDITS ATTEMPTED
CREDITS EARNED
END OF SCHOOL/SCHOOL YEAR SENTINEL
END OF ACADEMIC SECTION SENTINEL

(Only two tests are given in this example.
Any practical number may be included.)

(Only two schools or years are shown.
There is no practical limitation.)

APPENDIX C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9CH
Mohawk
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State Dept.
of
Education
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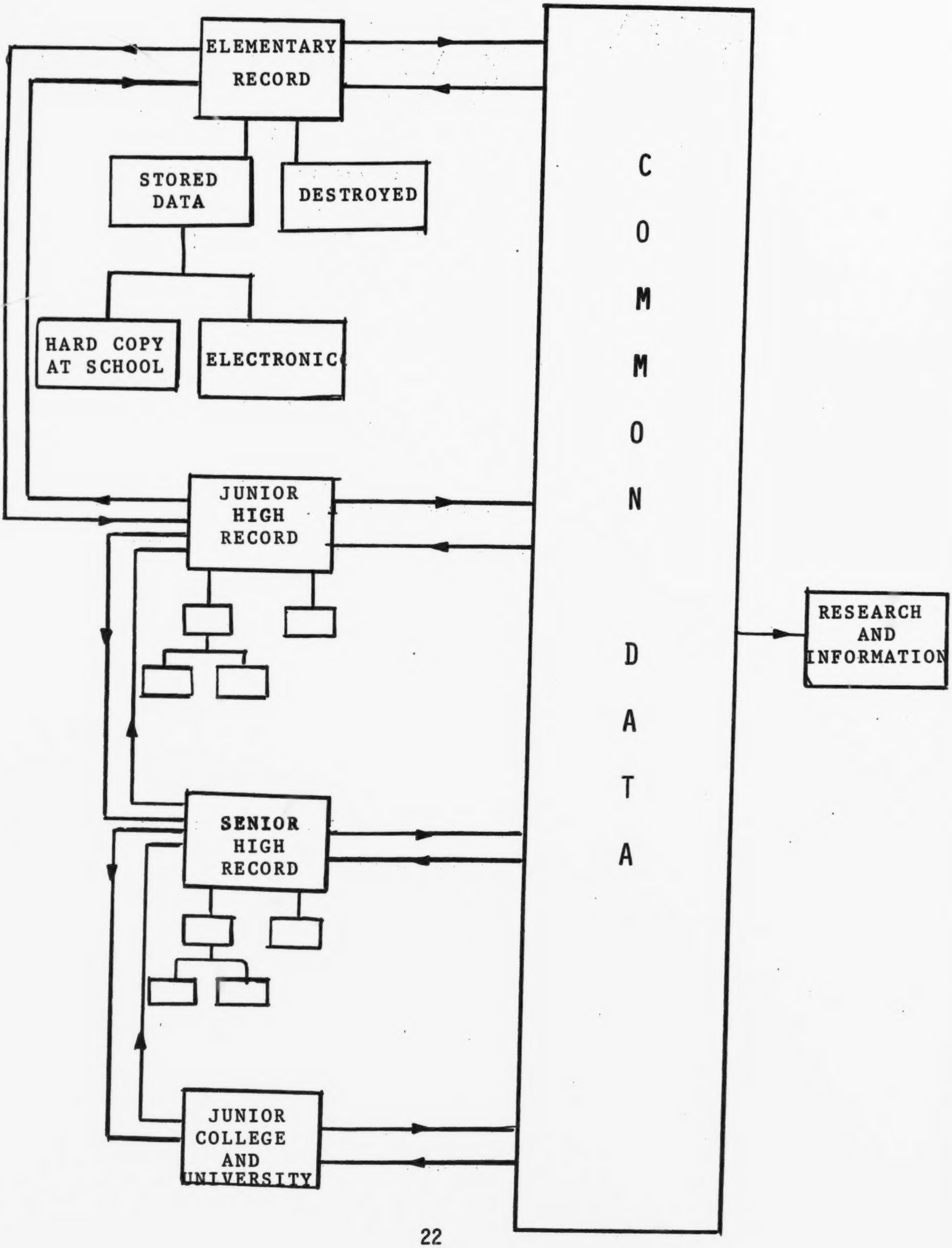
APPENDIX D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STORED DATA
DESTROYED
HARD COPY AT SCHOOL
ELECTRONIC
JUNIOR HIGH RECORD
SENIOR HIGH RECORD
JUNIOR COLLEGE AND UNIVERSITY
COMMON DATA
RESEARCH AND INFORMATION

APPENDIX E

Results of Pilot Study
Miami-Dade Junior College
County-Dade

Subject Area= English III	Number and Per Cent by Grades							
Test Performance	A	B	C	D	F	WP	WF	WD
1st Quantile	3	22	73	37	34	5	1	10
	.02	.12	.39	.20	.18	.03	.01	.05
2nd Quantile	16	108	291	76	66	6	1	35
	.03	.18	.49	.13	.11	.01		.06
3rd Quantile	41	268	442	99	60	12	.5	47
	.04	.28	.45	.10	.06	.01	.01	.05
4th Quantile	94	273	221	47	39	8	1	28
	.13	.38	.31	.07	.05	.01		.04
Total Per Centile Range	154	671	1027	259	199	31	8	120
	.06	.27	.42	.10	.08	.01		.05

THE ROLE OF COMMUNITY JUNIOR COLLEGES IN THE ACADEMIC REHABILITATION OF FORMER UNIVERSITY STUDENTS

Mr. James A. Carter
Research Assistant
Florida Board of Regents

Purpose of the Study

In the spring of 1968, the Office for Academic Affairs, Board of Regents, authorized a pilot study designed to explore the academic rehabilitation role of the community junior college in Florida. Specifically, the research was designed to assess the effectiveness of this role by examining the academic performance of students who entered FSU as freshmen and experienced academic difficulties, transferred to community junior colleges, and returned to FSU following attainment of the associate of arts degree.

Significance of the Problem

One of the traditional functions of the community junior college has been that of preparing students for upper division work in the four-year college or university. In this respect the junior college has acted as a transfer or feeder institution for senior colleges. It has become apparent, however, that the junior college also serves the converse function or that of receiver institution for students who leave the senior institutions after experiencing academic difficulties and desire to continue their educations.

Florida's community junior colleges offer the academically-troubled senior college dropout ample opportunity to redeem himself after initial difficulties. A survey of the catalogs of these institutions revealed that twenty of the twenty-six junior colleges accept transferees from other colleges (both two-year and four-year) on probation if their grade point averages are less than 2.00. The remaining junior colleges, while not necessarily excluding such students, indicate that they are considered on an individual basis.

The dimensions of the problem were indicated earlier this year in an issue of Research Notes.[1] In that publication it was reported that of approximately 20,000 community junior college students who responded to the survey instrument, about 1,000 stated that they transferred to their respective junior colleges from other institutions of higher education. Three out of five of these transferees came from four-year colleges. The assumption is warranted that a substantial number of these students left their previous institution because of academic difficulties.

It is evident, then, that these students, many of whom are ineligible to return to their original colleges and not qualified for admission to other four-year institutions, turn to the community junior college. For some, the two-year institution provides an avenue for reentry into four-year colleges; for others, the junior college offers other means to prepare for their life's work thus performing what Clark terms the "cooling out" function or the redirection of their efforts toward goals more in keeping with their abilities.[2]

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[1] James A. Carter, "Transfer Students Entering Community Colleges in Florida," Research Notes, No. 20 (Tallahassee, Fla.: Florida Board of Regents, Office for Academic Affairs, February, 1968).

[2] Burton R. Clark, The Open Door College (New York: McGraw-Hill Book Company, 1960), pp. 160-65.

Review of Related Research

Limited research exists pertaining to the academic rehabilitation role of the community junior college. The studies cited here are all unpublished and deal only with the student who has left the senior college to enroll in the junior college. No follow-ups of the students were attempted after they returned to the four-year institution.

Meadows and Ingle studied 53 transfer students at Kennesaw Junior College who were ineligible to return to their prior senior institutions. They found that these transferees were more successful at Kennesaw than the native freshmen. The rehabilitees achieved a mean increase in grade point average of .89 or almost one full point higher than the previous mean GPA . With success defined as a 1.9 average on a 4.0 scale, 35 of these students were successful in their new college environment; 18 were unsuccessful.[3]

At El Camino College, Undem and Muck followed the progress of a group of students that entered on probation from other institutions. Students who graduated or were removed from probation and remained in good standing were considered successful; those who were disqualified or who remained on probation were judged unsuccessful. Over 70 per cent of all the university and state college transferees were found to be successful. Other findings of interest were (1) more students who maintained the same course load at El Camino College as the last term at the former school were successful than those who decreased their course loads, and (2) students twenty-one years of age and over met with less success than students under twenty-one.[4]

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[3] Mark E. Meadows and Ronald R. Ingle, "Reverse Articulation: A Unique Function of the Junior College" (paper presented at the Convention of the Southern College Personnel Association, November 12, 1967), p. 7. (Mimeographed.)

Bissiri studied 387 students accepted on probation at Los Angeles City College after unsuccessful records at the University of California, various state colleges, other California junior colleges, and Los Angeles City College. Success (2.00 GPA or higher) expressed by percentages in the first semester after admission for the four groups was: University of California, 95 per cent; state colleges, 71 per cent; other California junior colleges, 50 per cent; and Los Angeles City College, 45 per cent. Bissiri identified several characteristics of the rehabilitee: 68 per cent were male, approximately two-thirds of the day-enrolled students were under twenty-two years of age, their median age was almost three years older than the regular day-enrolled freshman, and a higher percentage of the disqualified students came from four-year colleges than from two-year colleges.[5]

Winstead observed 191 four-year college transferees that entered two California community junior colleges, Diablo Valley College and Contra Costa College. For the most part, the reverse-transferees were economically, socially, and educationally advantaged. They were bright, highly motivated, and made their choices early to go to college. Findings indicate that among the reasons cited for transfer, academic difficulties were the most important augmented by non-academic problems of social adjustment. Winstead further found that the transferees performed well in the junior college setting compared with previous experience (mean GPAs 2.78 and 1.76 respectively).[6]

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[4] Jan Undem and Steven J. Muck, "An Analysis of the Records of Students Entering El Camino College on Probation from other Institutions of Higher Learning" (El Camino College Research Report, NO. 65-2, January 7, 1965), pp. 18, 19. (Mimeographed.)

[5] August Bissiri, "Disqualified Students Admitted to the Fall, 1965 Semester" (Los Angeles City College, Counseling Center Research Study, No. 66-6, August 1966), pp. 33-36. (Mimeographed.)

In conclusion, the research to date has been restricted to a consideration of the rehabilitation role of the community junior college as it pertains to the rehabilitee while he attends the two-year institution. No known research has been directed toward assessing the effectiveness of the rehabilitation role by following the progress of this student after he has returned to a four-year college.

Definitions

1. Junior College Rehabilitee (JCR)

The student who dropped out of FSU after having achieved less than a 2.00 GPA, transferred to a community junior college in Florida where he earned the associate of arts degree, and reentered FSU as a junior in the fall quarter, 1967.

2. Correspondence Study Rehabilitee (CSR)

The student who dropped out of FSU with less than a 2.00 GPA, took correspondence courses offered by the State University System, and reentered FSU as a junior in the fall quarter, 1967.

3. Junior College Transferee (JCT)

The student who earned the associate of arts degree from a community junior college in Florida and transferred to FSU as a junior in the fall quarter, 1967.

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[6] William Martin Winstead, "Factors Related to the Academic Careers of Students Who Have Transferred from Senior Colleges to Two Junior Colleges in California" (unpublished Ed.D. dissertation, University of California, Berkeley, 1966), pp. 236-51.

4. Florida State University Native (FSUN)

The student who has been in attendance at FSU since he was a beginning freshman and who was classified as a junior in the fall quarter, 1967.

5. Grade Point Average (GPA)

The average computed by dividing quality points earned by credits attempted when quality points are awarded on the following basis: A = 4, B = 3, C = 2, D = 1, F = 0.

6. Florida State Twelfth Grade Test (FSTGT)

A battery of standardized tests administered to twelfth grade students in Florida high schools each fall. The battery consists of an academic aptitude measure and five achievement tests in the following broad areas: English, social studies, natural science, mathematics, and reading.

Hypotheses

1. There is no difference in academic aptitude, as measured by the FSTGT, of (a) the JCRs and the JCTs and (b) the JCRs and FSUNs.

11. There is no difference in the mean quarter hours attempted over the fall and winter terms, 1967-68, at FSU of (a) the JCRs and JCTs and (b) the JCRs and FSUNs.

111. There is no difference in the mean GPAs earned during the fall and winter terms, 1967-68, at FSU of (a) the JCRs and JCTs and (b) the JCRs and FSUNs.

Procedure

The primary study group consisted of twenty JCRs. Subjects were obtained by checking a list of readmitted students compiled by the

Registrar's Office at FSU against the permanent records. The number of students fitting the definition was so small that the entire population was selected rather than a sample.

Students identified as CSRs, JCTs, and FSUNs comprised three comparison groups. The CSRs were obtained by the same method as above. Again, the number was so small that the population of twenty was retained. The JCTs and FSUNs were selected from two lists of fifty students each randomly selected from the master name tape at FSU. A sex ratio of about two males to one female (the same as that for the JCR group) was a criterion for the selection of the last two groups.

Following selection of the study groups, data were collected from the permanent records relating to age, hours attempted, FSTGT scores, and GPAs. Data for the JCRs were compared with data for the other three groups and presented in tabular form.

The three hypotheses were subjected to t-test analyses using the .05 level of significance. The same statistic was applied to other comparative data in the research. No tests of the significance of differences in the study variables between the JCRs and the CSRs were made.

Findings

Table 1 reports the mean GPAs and hours attempted by the JCRs and the CSRs during their first period at FSU. While neither student distinguished himself, the JCR compiled a considerably poorer record than did the CSR (1.41 mean GPA versus 1.84 mean GPA). Only eight of the JCRs achieved a 2.00 or higher GPA for one term or more. Seventeen of the CSRs did attain this level at least once. The CSRs were a more homogeneous group regarding performance and attempted more than twice as many mean hours as the JCRs.

TABLE 1

MEAN GPAs AND HOURS ATTEMPTED BY JCRs AND CSRs
DURING THEIR FIRST PERIOD AT FSU

Groups	N	$\overline{X}$GPA	SD	$\overline{X}$ Hours Attempted	SD
JCR	20	1.41	.32	34.20	12.55
CSR	20	1.84	.10	72.20	13.45

In Table 2 the number of terms attended by the JCRs and the CSRs during their first period at FSU are compared. The mean number of terms attended was 2.45 and 4.85 respectively. These data reflect the relative degree of difficulty experienced by each group.

Both types of students tended to remain at FSU until it was no longer possible. Fourteen JCRs were dismissed for academic reasons, four were on academic probation, and two were still in good standing (although having GPAs well below 2.00) at the time they left the University. Of the CSRs, eighteen were dismissed for academic reasons and two were still in good standing at the time they terminated (Table 3).

TABLE 2

NUMBER OF TERMS AT FSU BY THE JCRs AND CSRs
DURING THEIR FIRST PERIOD AT FSU

Groups	Terms					
	One	Two	Three	Four	Five	Six
JCR	4	5	9	2	0	0
CSR	0	0	0	10	3	7

Note.--Summer terms not included.

TABLE 3

STATUS OF THE JCRs AND THE CSRs AT THE TIME THEY TERMINATED STUDY DURING THEIR FIRST PERIOD AT FSU

Groups	Academic Probation	Academic Dismissal	Good Standing	Total
JCR	4	14	2	20
CSR	0	18	2	20

Few students in either group discontinued their educations for an extended period of time (Table 4). Fourteen JCRs entered community junior colleges the term following their last semester at FSU. Likewise, most of the CSR's (19 of 20) undertook correspondence study with no delay. That a large percentage of the students in each group continued their studies immediately after leaving the university appears to have had no ill effect on their performance during the second stage of their education as both groups achieved high GPAs at this level. This suggests that the policy of some junior colleges requiring the student who has been unsuccessful at another institution to "sit out" a term before being allowed admittance may not necessarily be in the best interests of the student. It further suggests that both groups of students were highly motivated to persevere in their college work.

TABLE 4

NUMBER OF TERMS ELAPSING AFTER LEAVING FSU UNTIL ENTRY INTO JUNIOR COLLEGE OR BEGINNING CORRESPONDENCE STUDY BY JCRs AND CSRs

Groups	Terms			
	None	One	Two	Total
JCR	14	3	3	20
CSR	19	1	0	20

Mean hours attempted and mean GPAs of the JCRs and JCTs at the junior college level and CSRs for correspondence study are recorded in Table 5. The JCR did quite well at this level compared with his previous performance at FSU as well as when compared with the JCT. His mean junior college GPA was 1.28 points higher than his mean FSU GPA (2.69 versus 1.41). No significant difference was found to exist between the mean GPA earned by the JCR (2.69) and the mean GPA earned by the JCT (2.60) when subjected to a t-test analysis.

The CSR earned a much higher GPA (3.91) than either the JCR or the JCT, but his average was based on only 6.15 mean semester hours attempted. This high average is explained by the fact that the CSRs took "certain" courses in which almost all students received A's.

The JCTs attempted the most hours at junior college, since all their college work for the first two years was at this level. The JCRs were able to transfer some hours from FSU which counted toward requirements for the associate of arts degree. The CSR needed to earn only enough quality points to bring his cumulative GPA up to a level which would enable him to reenter FSU. This explains why he attempted few hours of correspondence study.

These data support the notion that the student who experiences academic difficulty at FSU is a good risk in the junior college.

TABLE 5

MEAN GPAs AND MEAN HOURS ATTEMPTED BY THE JCRs AND THE JCTs ON THE JUNIOR COLLEGE LEVEL AND THE CSRs FOR CORRESPONDENCE STUDY

Groups	N	$\overline{X}$GPA	SD	$\overline{X}$ Hours Attempted	SD
1. JCR	20	2.69	.33	47.90	14.29
2. JCT	31	2.60	.54	68.75	12.38
3. CSR	20	3.91	.24	6.15	2.60
t-value groups 1 and 2 P (.05)			.7299 n.s.		

The mean ages of the JCR group (20.7 years) and the CSR group (20.7 years) were higher than those of the JCT and the FSUN groups at the time of reentry to FSU (Table 6). This reflects the necessity for their having to make up for their poor records during their first period at FSU. T-tests indicated that a significant difference existed between the mean ages of the JCRs and the FSUNs, but not between the JCRs and the JCTs.

Table 7 reports the mean FSTGT scores for each student group and the results of t-test analysis. As indicated, the JCRs, CSRs, and FSUNs differed by only a few points. When the means for the JCRs, JCTs, and FSUNs were compared, no significant differences were found. Ability, then, as measured by the FSTGT appears to be fairly equally distributed among the groups. Therefore, hypothesis 1 which states that there is no difference in academic ability of (a) the JCRs and JCTs and (b) the JCRs and FSUNs stands.

TABLE 6

MEAN AGES IN YEARS OF THE JCRs, THE CSRs, THE JCTs AND THE FSUNs AS OF SEPTEMBER, 1967

Groups	N	$\bar{X}$	SD
1. JCR	18	20.7	1.20
2. CSR	18	20.7	1.68
3. JCT	31	20.2	1.22
4. FSUN	26	20.0	.62
t-value groups 1 and 3	1.41		
P (.05)	n.s.		
t-value groups 1 and 4	2.10		
P (.05)	s.		

Note.--Ages were not available for all students.

TABLE 7

COMPARISON OF MEAN FSTGT SCORES AMONG THE JCRs, CSRs, JCTs, and FSUNs

Groups	N	$\overline{X}$	SD
1. JCR	14	366	68.53
2. CSR	16	373	52.90
3. JCT	31	336	56.52
4. FSUN	27	366	42.10
t-value groups 1 and 3 P (.05)	1.51 n.s.		

Note.--Scores were not available for all students.

The JCR group's mean attempted hours over the two terms at FSU was 24.50 (Table 8). This was the lowest of the four groups. A significant difference was found to exist between the JCR and JCT groups and between the JCR and FSUN groups. Hypothesis 11 stating that there is no difference in the mean quarter hours attempted of (a) the JCRs and JCTs and (b) the JCRs and FSUNs is discarded. The alternative hypothesis that a significant difference does exist is accepted.

TABLE 8

MEAN QUARTER HOURS ATTEMPTED BY THE JCRs, CSRs, JCTs, and FSUNs OVER THE FALL AND WINTER QUARTERS, 1967-68

Groups	N	$\overline{X}$	SD
1. JCR	12	24.50	3.55
2. CSR	18	26.44	4.20
3. JCT	29	28.38	3.30
4. FSUN	27	28.55	3.76
t-value groups 1 and 3 P (.05)	3.27 s.		
t-value groups 1 and 4 P (.05)	3.08 s.		

Note.--Includes only those students in attendance for the two terms.

Of the four groups, the JCRs received the lowest mean GPA (1.97) for the two quarters at FSU. The FSUN group was highest with 2.61 (Table 9). There was no significant difference between the mean GPAs of the JCRs and the JCTs. Part (a) of hypothesis 111 cannot be rejected. A significant difference was found between the GPAs of the JCRs and the FSUNs. Part (b) of hypothesis 111 is discarded in favor of the alternative hypothesis that a significant difference does exist.

Table 10 sets forth the mean GPAs earned by the JCR in each phase of his college experience. These data show that the JCR achieved significantly different grades at the junior college than either period at FSU. He also performed significantly different during his second period at FSU than during his first period at this institution. Eleven of the twenty JCRs achieved cumulative 2.00 or higher GPAs during their second period at FSU.

TABLE 9

COMPARISON OF MEAN GPAs ACHIEVED BY THE JCRs, THE CSRs, THE JCTs AND THE FSUNs OVER THE FALL AND WINTER QUARTERS, 1967-68

Groups	N		$\bar{X}$	SD
1. JCR	20		1.97	.78
2. CSR	20		2.20	.45
3. JCT	31		2.38	.53
4. FSUN	27		2.61	.75
t-value groups 1 and 3		1.86		
P (.05)		n.s		
t-value groups 1 and 4		3.12		
P (.05)		s.		

TABLE 10

COMPARISON OF MEAN GPAs EARNED BY THE JCRs IN EACH PHASE OF THEIR COLLEGE WORK

Phase	N	$\overline{X}$	SD
1. First Time FSU	20	1.41	.32
2. Junior College	20	2.69	.33
3. Second Time FSU	20	1.97	.77
t-value 1 and 2	12.02		
P (.05)	s.		
t-value 2 and 3	3.72		
P (.05)	s.		
t-value 1 and 3	2.90		
P (.05)	s.		

Summary

The JCR group earned a mean GPA of 1.41 and attempted 34.20 mean hours during the first period at FSU. These students tended to remain at FSU until it was no longer possible as almost three out of four were dismissed for academic reasons. In contrast, the CSR group earned a 1.84 mean GPA based on 72.20 mean attempted hours. Obviously the CSR student did not experience academic difficulty to the same degree as the JCR and this explains why he selected correspondence study as a route for reentry rather than the junior college.

Both of the above groups continued their studies with little delay after initial failures at FSU. Seventy per cent of the JCRs and 95 per cent of the CSRs resumed their educations the term following their last semester at FSU.

At the junior college level the JCRs attempted 47.90 mean semester hours and achieved a mean GPA of 2.69 which was significantly different than their FSU mean GPA. The group's performance was not found to be significantly different than the JCTs (2.60 mean GPA). The CSRs earned a 3.91 mean GPA and attempted 6.15 mean semester hours for their correspondence study.

At the time of reentry to FSU (September, 1967) the mean ages of the JCRs (20.7 years) and the CSRs (20.7 years) were higher than the JCTs (20.2 years) and the FSUNs (20.0 years). This was to be expected since they were required to take additional courses to make up for their initial failure at FSU. T-tests showed that a significant difference in age existed only between the JCRs and the FSUNs.

In ability, as measured by the FSTGT, there were no significant differences between the JCRs and the JCTs and the JCRs and the FSUNs. All four groups were relatively homogeneous regarding ability.

During the second period at FSU the JCRs attempted significantly different mean hours (24.50) than the JCTs (28.38) and the FSUNs (28.55). The JCRs also earned a lower mean GPA (1.97) than the other groups. However, only the FSUNs achieved a significantly different mean GPA (2.61) than the JCRs.

The JCRs performed significantly different during the second period at FSU (1.97 mean GPA) than during the first period (1.41 mean GPA). Their highest level of work was at the junior college level (2.69 mean GPA).

Conclusion

This study, although not definitive, has, nevertheless, yielded some interesting information concerning a role performed by Florida's community junior colleges which has received virtually no attention in the past. The product of this role, the rehabilitee, while not achieving as high a GPA as the comparison groups during his second period at FSU did meet with what must be considered a substantial degree of success. More than half of these students earned a 2.00 or higher GPA in their second attempt at the university.

What would have happened to this student had not the community junior college been willing to furnish him with the opportunity to redeem his initial poor record at FSU? It is unlikely that he would have been admitted to any four-year college much less readmitted to FSU without having proven by his success at the junior college level that he deserved another chance in a senior institution.

The doors of the community junior colleges should continue to open wide to the student who has failed in his first attempt at FSU. To deny admission to such a student, in all likelihood, results in a waste of human talent.

USE OF THE COLLEGE LEVEL EXAMINATION PROGRAM IN THE TRANSITION OF STUDENTS FROM LOWER LEVEL TO UPPER LEVEL STUDY

Richard Burnette, Director
Institutional Research and Testing
Florida Southern College

At Florida Southern College we have structured the four year bachelor's degree program into a lower level and an upper level. During a student's first two years he must complete his basic liberal arts program as a prerequisite for admission to the upper level. The student knows from his first day on campus exactly what courses he must complete to satisfy this lower level requirement.

If a student entering a junior college knew he was going to transfer to Florida Southern College, he would have no difficulty scheduling comparable courses and effecting a transition without loss of credit. In fact, we treat the junior college graduate exactly the same as our own lower level students.

The problem, as I see it, arises when a student in junior college elects courses which do not parallel those required by the four year institution to which he aspires to transfer. His transcript becomes an impossible collection of courses, yet he somehow has the notion that he has been to college for two years and should be graduated in two more!

Dr. James Wattenbarger as chairman of a joint committee on Junior and Senior Colleges helped publish a booklet entitled Guidelines for Improving Articulation Between Junior and Senior Colleges. In the first section of Jim's book (Admissions) he states, "...junior college students should be strongly encouraged to complete all of their lower division work before transfer..." As I understand it, he is not instructing the junior colleges to conform to a rigid parallel of the first two years of a senior college; rather, he is instructing the student to elect from the variety of available offerings those which will transfer.

At this point I would like to introduce the prospect of shifting the emphasis from courses to competencies. Just because a course in one school has a similar title to a course in another school does not warrant the assumption that the courses are parallel. Conversely, how can we justify not accepting courses solely because our catalogue does not cite the exact same course title?

The Florida Twelfth Grade Test or the College Board SAT is widely used in the transition from high school to college. Graduate schools almost universally require the Graduate Record Examination (GRE) for the transition beyond college. The same rationale should apply to students making the transition from junior college to senior college. At Florida Southern College we require our students to demonstrate a minimal level of competence on the College Level Examination Program (CLEP) General Examinations prior to admission to upper level. Although Jim Wattenbarger's book states that applicants who qualify for transfer on the basis of grades in junior college should not be denied admission because of test scores, he is not suggesting that they be exempt from requirements which a senior college imposes on its own lower level students!

Conferences on articulation between junior and senior colleges often degenerate into discussions of how the C average is computed--generalizations about a given junior college predicated on a sample of one--quibbling about whether a course can transfer as upper level credit--whether a student should be accepted who was ineligible to enter as a freshman--and on and on.

Gentlemen, I have the solution. A standardized test. It works both ways. It demonstrates to the senior college that the junior college student can have competencies not unlike those in the senior college despite the fact that the course numbers and descriptions may not match. It may also serve to suggest that the junior college student may not have the minimal competence to compete successfully in a given senior college program.

At Florida Southern College we currently use the CLEP General Examinations. Our experience with CLEP has been quite rewarding. In fact, in the five and one-half years since we started requiring them, we have demonstrated their validity in assessing competencies in the basic liberal arts areas. (Prior to 1967 these tests were called the Comprehensive College Tests or CCT.)

We began by securing copies of the tests for review by our faculty. Although the questions were framed in a multiple choice format, the faculty were impressed by the degree of thinking and understanding required to make correct choices. The coverage seemed complete with the exception of an area in oriental art which our department did not emphasize in the required art and music courses. Our next step was to test all of our own students (second semester sophomores) and to compare their performance on the test with their performance in our prescribed courses. High correlations were found between scores on each of the five sections and the nine sub-sections and grade point averages in the related required courses. Of even more significance was the fact that out of 350 students tested in the Spring of 1964 (our second year), students scoring below our local 10th percentile on any section fell into one of the following three categories: (1) they had not taken the prescribed courses in that area; (2) they took the prescribed courses but made "D" or "F" grades; or (3) they transferred courses in that area.

In establishing norms, we picked as the lowest passing scores those which separated the students who had taken the prescribed courses and obtained a "C" or better from those who fell in the three categories cited. Although virtually no one (5 in 350) who scored below 420 had taken the courses and obtained the prescribed "C" grade, we found that there were still many above 420 who had satisfied only half of the math or science requirement, for example. Only when we cut at 450 could we assume they had taken the prescribed courses and achieved a minimal "C" grade.

In other words, at Florida Southern College a 450 CLEP score on each of the five sections would demonstrate a competence which could be equated with at least a minimal "C" grade in the prescribed lower level course. We have administered this test each semester and will continue to require it of our own students. The norms are shifting slightly upward reflecting perhaps changes in our freshman admissions criteria. Our faculty is convinced of the validity of this test.

With junior college graduates (AA degree), as with our own students, we recognize passing scores on the CLEP as a demonstration of minimal competency in the basic liberal arts areas and accord them full junior status.

Not all four-year colleges are the same. A national testing program facilitates the advising of students and helps route them to colleges in which they can complete their degree program with a minimum of lost time. I'm not sure what the CLEP measures but, for us, it works. It has virtually solved our problems in the transition of students from lower level to upper level study.

THE COMPUTER PRINTOUT OF SURVEY DATA-- ITS FEATURES AND POTENTIAL USES

Dr. William M. Hunt
Director of Institutional Analysis
Florida Atlantic University

The series of questionnaires which are presently being administered by the Board of Regents evolved from questionnaires devised by the individual Florida Universities for the purpose of obtaining data on the characteristics of their own students. The questionnaire previously used at FAU was mimeographed, the responses were marked directly on the questionnaire, and the results were key punched. A relatively unsophisticated computer program was written to tally and compute the percentage distribution of responses.

A meeting was organized during the summer of 1965 in order to combine the questionnaires that were used by the individual universities and produce one which would be suitable for use statewide. The result of that meeting was an instrument for senior universities which was very similar to the present version. In addition, an answer sheet was designed for use with the questionnaire. This instrument was administered by all of the state universities on a trial basis in the fall of '66. The analysis program was revised somewhat in order to process the output from a 1230 scoring machine. The resulting analysis was sent to the Board office, and FAU was asked to process the questionnaries from the other state institutions and to produce combined analyses by various categories. A data collection system was developed which is still in use. The questionnaires are administered by the individual institutions. The answer sheets are sent to the Board office. They are then forwarded to Florida Atlantic University and processed on a 1230 scoring machine. A card is punched for each answer sheet, showing the responses, and this serves as the input to the computer analysis program. In some institutions the questionnaires are processed and cards punched at the institution and the deck is sent to Florida Atlantic University. The data is re-formatted to correspond to the FAU format and loaded on magnetic tape. This tape serves as input to the analysis program. An example of the type of printout produced by this original computer program is shown in Table 1.

This program was originally written for an IBM 1460 computer with limited core storage capacity, four tape drives, and one disk drive. It became necessary to re-program almost immediately when the statewide analyses were undertaken due to the fact that the original program was written for small groups and was not designed to tabulate over 9,999 responses. The resulting increase in the size of the tables created considerable difficulty in producing a program which would fit in the limited storage capacity of this machine.

In order to make the questionnaire reasonably readable it was necessary to store considerable alphabetic data which take up large amounts of storage. This problem was solved by using the direct access disk drive for storing some of the tables. This enabled Table 2 to be printed.

This method is fairly satisfactory for small groups. However, it is necessary to access the disk each time the tables are referenced, and although the access time is quite fast, in the neighborhood of a few milliseconds, considerable time is required to process large numbers of questionnaires. An additional problem with the 1460 is that the machine is

TABLE 1

Board of Regents Questionnaire for Entering Freshmen & Transfer Undergraduates
Florida Atlantic University Quarter IV 1968 02 06/14/68 8.43.31
Frequency Distribution of Responses N= 170

Item	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	Blank	Invalid
1	100	69									1	--
2		19	31	17	12	40	26	25				--
3	1	2	157	9							1	--
4	29	66		10	25	3	7	6	11	13		--
5	129		18	23							1	--

Percentage Distribution of Responses N= 170

Item	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	Blank	Invalid
1	59	41										--
2		11	18	10	7	24	15	15				--
3	1	1	92	5							1	--
4	17	39		6	15	2	4	4	7	6		--
5	76		11	13								--

TABLE 2

Florida Board of Regents Junior College Questionnaire

Edison J. C. Fall 68 256 10/22/68

Code	Field	Frequency	Percent
0005	Agriculture	3	1.1
0006	Agronomy	1	.4
0015	Ornamental Horticulture	1	.4
0025	Other Agriculture Major Not Listed Above	1	.4
0100	Architecture	9	3.2
0304	Art	13	4.6
0308	Biological Sciences	1	.4

not able to read cards with invalid characters so that if a questionnaire contains a double mark anywhere, the resulting card will cause the computer to stop processing. As a result, it was necessary to eliminate all answer sheets with any invalid marks during the 1230 scoring process. It was discovered that double marks were particularly prevalent in the ID section of the questionnaire, probably because the rows are close together, and we therefore decided not to scan the ID portion. This is unfortunate in that follow-up studies will not be possible using the data for that year.

Another limitation of the original questionnaire arose from the fact that the 1230 scoring machine is designed to look at a whole word at a time. An area may contain only two possible valid responses such as male or female. However, if a stray mark is made anywhere else in that area, it will show up as an invalid response and the resulting analysis becomes inaccurate. This problem was circumvented by revising the computer program to include a table of valid responses for each item. This table is indexed as each question is considered, and if the response does not appear in the table, a tabulation is made for an invalid response for that question. Of course, this sort of sophistication creates additional storage problems in such a small machine. An additional problem which is encountered in processing questionnaire responses is that of round-off error in computing percentage distributions. If there are a number of possible responses, it is quite possible to have the individual percentages add up to anywhere from 98 per cent to 102 per cent, and this apparently creates some confusion in the minds of those who are using the analysis. The program was therefore revised to add percentages after they are computed, and if the sum is not equal to 100 per cent an adjustment is made. The percentages are adjusted by scanning to find the one which was originally adjusted by the greatest amount and readjusting this percentage. The total is then recomputed and this process continued until the sum equals 100 per cent.

During the summer of 1967, Florida Atlantic University converted to an IBM S/360 MOD/40 with four tape drives and two direct access disk drives, but with a relatively small amount of internal storage. The original analysis program was written in a machine-oriented language because of limited storage capacity, and it was therefore necessary to reprogram for the 360. Again because of storage problems, the new program was written in the machine-oriented language rather than a problem-oriented language such as Fortran. Although the 360 has a much shorter processing time than the older machine, the access time to the disk drive is about the same so that if the original method of processing were used, processing time would still be a problem. As a further complication, a special questionnaire was produced for the junior colleges at about this time, and this questionnaire contains a very large table of Florida high schools. In reprogramming, a way was devised to avoid this constant accessing of the disk so that the present program refers to the information stored on the disk only after all response cards have been read in and processed and the actual distributions are being printed. An additional advantage of the 360 is that it can be programmed to provisionally accept invalid data. The present program uses all valid data for each student and discards only responses which are actually double marked. Therefore, it is also possible now to include ID numbers in all cases.

During the summer of 1968 the questionnaire for both the senior institutions and junior colleges underwent minor modifications including a change to a three-digit college code. It was therefore necessary to reprogram and, in the process, two additional problems which had arisen were overcome. We had found in our own institution that the analysis was difficult to use because the actual questions were not included on the printout. At about this time a one-page questionnaire was developed for Florida high school seniors. This questionnaire has the items and responses printed directly on the 1230 answer sheet. Florida Atlantic University was asked to produce a computer program for the analysis of this questionnaire. Because of its small size, it was deicded to produce an analysis which would print out the actual questions and alternative responses. The revised method of storing alphabetic information in tables on the disk made this possible, and it became apparent that this same technique could be used with the senior institutions and junior college questionnaires. An example of the resulting output is set forth in Table 3.

The other problem which was eliminated arose from the fact that the number of respondents should vary from question to question. Up to this point the N used for computing percentage distributions remained the same for all questions and this led to problems of interpretation. This was particularly true of the Junior College Questionnaire which involves several logical branches. As an example, those who respond to question No. 15, "what type of program are you pursuing?" with response 3, 4 or 5, should skip directly to item No. 22, and the N for questions 16 through 21 would therefore be different than the total N. To further complicate the problem some responses to these questions will be made by people who should not have answered them on the basis of their answer to question No. 15. The technique which was used by the

TABLE 3

Florida Board of Regents | Junior College Questionnaire
Edison Junior College | Fall 68 256 | 10/22/68

Race	N=	437	%
1. White		327	74.8
2. Negro		6	1.4
3. Other		0	.0
Blank		103	23.6
Invalid		1	.2
1. SEX	N=	437	%
1. Male		267	61.1
2. Female		168	38.4
Blank		1	.2
Invalid		1	.2
2. AGE LAST BIRTHDAY	N=	437	%
1. 18 or under		322	73.7
2. 19		55	12.6
3. 20		12	2.8

current revision of the program prevents such invalid responses. For example, all those who answered 3, 4 or 5 to question 15, would automatically have any responses to questions 16 through 21 blanked out. There may be some debate as to the validity of this procedure, but it greatly simplifies the interpretation of the results. A program was written to scan the High School Questionnaire responses before they were blanked out to give some idea of the validity of the data. A similar program is planned for the other two questionnaires.

Finally, a generalized computer program has been written to enable any desired analysis to be made. The tapes containing all schools are scanned. Any school or group of schools can be picked off, and a particular pattern of responses to any question can also be picked off on a separate tape, and the regular analysis program can then be run on this particular group. At the present time, statewide analyses are being run for the Board office in which the responses are broken down by such categories as sex, transfer students versus non-transfer students, those who have not entered directly into upper division from lower division, etc. However, very little is being done as far as comparisons between institutions or groups of institutions.

The following analyses, which have been run here at Florida Atlantic University, provide examples of the sort of thing that can be done with this data. It is possible to scan the Junior College tape and pick off all those who have indicated that they are going to attend any particular senior institution upon graduation. The main analysis program can then be run on this group and the senior institution can determine the characteristics of this group and how many of them are coming from each junior college. This sort of information is extremely useful for any institution.

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Investigating the differences among student populations is another important application. We have recently investigated some of the differences between our student population and transfer students entering the University of Florida and Florida State University. The differences and percentages of response to selected questions for the three institutions are in Table 4.

These differences among student populations are obvious and certainly need to be taken into account in planning for the individual institution. More of these inter-institutional comparisons need to be made. The original role and scope plans were based on the idea that each institution was to develop in its own unique way, and this presents one method of finding out whether this is really happening.

It is possible to consider the results of this questionnaire in terms of other data on hand. In particular, the 12th Grade Testing Program results are now available on tape with social security numbers as IDs so that schools who use this method of identification on their questionnaire responses can make a number of interesting analyses of the relationship between these two sets of data. For example, it might be interesting to determine whether brighter students are making decisions as to major earlier than the less bright ones. Some questions which have arisen in the course of making enrollment projections may also be answered using questionnaire data. Dr. John Webb, who has been making enrollment projections for the Board office, has discovered that certain junior colleges in the state have unusually high drawing power from parts of the state that are quite distant and at the present time the reasons are unkown. It should be possible to obtain some insight into this phenomenon by considering the people who have entered these particular schools, picking off everybody from that group who did not attend a local high school, running the analysis program on this group, and

TABLE 4

PERCENTAGES OF RESPONSE TO SELECTED ITEMS
UNDERGRADUATE QUESTIONNAIRE, NEW STUDENTS
UF, USF, FAU (FALL, 1968); USF (FALL, 1967)

Item	UF	FSU	USF	FAU
Most Important Reasons for Attending				
1. Inexpensive	6.5	4.2	5.5	14.3
2. Close to home	6.2	6.0	26.8	26.9
3. General academic reputation	21.9	15.7	18.0	10.8
Planning to Enroll in Professional Schools after Graduating				
1. Business	6.2	9.5	9.5	14.0
2. Education	12.5	21.9	22.0	38.7
Family Income				
1. Below $5,000	8.5	11.3	15.0	17.8
2. Over $15,000	27.2	23.3	14.9	13.0
Obtaining College Education with No Family Financial Support	8.0	10.2	12.9	20.2
Extent of Father's Education				
1. Eighth grade or less	4.9	7.2	8.8	13.1
2. Bachelor's degree	18.0	16.8	13.4	9.5
Extent of Mother's Education				
1. Eighth grade or less	2.6	3.5	5.1	8.4
2. Bachelor's degree	10.5	12.1	8.8	6.9

then looking at the reasons why they chose to enter that school. A main endeavor in the future should be follow-up studies. For instance, how many entering junior college students are actually going where they said they were going to go after leaving the two-year college? How many are ending up with the same majors as they indicated? This information is vital to all of us who are making plans for the future.

A major problem in improving the validity of the questionnaire data involves identification of individual questionnaires. In order to conduct follow-up studies and to relate the questionnaire data with other sources, it is necessary to have a valid social security number. This is not a problem at Florida Atlantic University due to the fact that pre-headed answer sheets are used, and this method is definitely recommended to anyone who has the necessary facilities.

There is some question as to the completeness of the samples in some cases. Dr. Webb has determined, using this questionnaire data, that the percentage of those who enter a junior college and transfer to any Florida senior institution after two years is in the neighborhood of 13 per cent. This is much lower than previously thought. In comparison, data obtained directly from the Registrars of the institutions indicates a figure of about 20 per cent, which is still much lower than previous estimates. Upon analyzing the difference school by school, we determined that some institutions' percentages on the questionnaire are within 1 per cent of the registrars' figures, while others show large differences. This would indicate that perhaps they are administering the questionnaires to incoming freshmen as part of their orientation program but that the transfer students are not being adquately covered. It is extremely important that the administration of this instrument be as complete as possible, particularly in view of the fact that the resulting data are invaluable to all institutions.

THE FLORIDA COMMUNITY JUNIOR COLLEGE INTER-INSTITUTIONAL RESEARCH COUNCIL

Dr. James L. Wattenbarger, Director
Institute of Higher Education
University of Florida

It is a little like a proud father-to-be that I feel today. You understand, I'm certain, how one must feel as he watches his wife knit the "little things" and as he mentally purchases the bicycle, the football, or even the first party dress in anticipation of their growth. Will it be a boy or a girl? Twins, maybe? The Florida Community Junior College Inter-Institutional Research Council is really just at the stage of anticipation. We have planned and discussed its need and its development, we have provided the outline for its work, we have even determined the target dates when operation will begin--but it's all still in the future.

We are all well aware of the overwhelming need for sound data collecting procedures. We are also well aware of the fact that we who work in the field of education often make decisions based upon little or no defensible evidence.

All too often we make our decisions using one or more of the following methods:

1. Pooling ignorance: a survey of opportunity.
2. Making logical statements and staying with them through all kinds of debate: persuasive stubbornness.
3. Finding support for a previously determined position in print "somewhere" and quoting from it: finding authority.

4. Intuition--study and evolve an answer: the professional confidence.
5. Parroting procedures used in other places: it's done that way in _________ college or _________ university.

These procedures are inadequate. They will not be satisfactory especially during the next few years. We are now entering a period of national growth and development when higher education will need to continue a rapid growth while elementary and secondary schools settle down to a much more steady and smaller annual increase. The community junior colleges in particular in Florida will need to study themselves most thoroughly and most carefully. The annual Minimum Foundation Program for the Florida community junior colleges in 1955 was less than two million dollars; the comparable amount for 1968 is more than forty million. This type of increased expenditure in and of itself requires much more careful attention to a solidly scientific approach to the collection and interpretation of data reqarding the community junior colleges.

Although the Division of Community Junior Colleges and the Board of Regents have many research responsibilities, these agencies have found themselves tied down with the absolutely essential types of research activities. This leaves little time for other types of research and study.

Generally, it is also true that individual community junior colleges have not been able to carry out the amount of research that is not only desirable but necessary for continued progress. In addition a single institution cannot develop the varied bases for study that are usually required for valid research.

The need for more activity in the area of research, the need for inter-institutional cooperation, the need for leadership--all of these constitute the basis for action in developing the IRC.

The history of the Florida IRC began last January when the Institute of Higher Education was established at the University of Florida. This Institute was conceived as a research and service agency of the University and has five major purposes:

1. Conduct research studies which will identify, explain, and/or provide a basis for improving higher learning and the institutions responsible for it;
2. Develop models which may be used in the research and development programs of individual community junior colleges, colleges granting the baccalaureate degree, and universities;
3. Contribute to the organized knowledge regarding the management and organization of institutions of higher learning;
4. Examine and seek ways to improve post high school educational programs, especially as these may relate to students and faculty;
5. And finally, focus attention upon the processes of higher learning in order to discover ways of increasing the effectiveness of education at this level.

These purposes encourage the Institute to assume an active role in developing inter-institutional research. Specifically the IRC will:

1. Provide an opportunity for the coordination of research efforts among the Florida community junior colleges, thereby increasing the effect of research findings;

2. Permit colleges to pool their planning and the development of resources for more efficient and comprehensive research efforts;
3. Provide leadership in institutional research through in-service education of the institutional research representatives;
4. Encourage publication and other dissemination of research efforts carried out by the Council and/or individual colleges;
5. Provide a positive vehicle for staff members who need opportunity for continual education to receive help and encouragement.

These objectives were discussed with the Presidents' Council and with representatives of the institutions during the Spring. As the new budget year approached, colleges were asked to make definite commitments of support for the Council. These came in slowly because of the myriad of details which accompanied the July 1 change over of the local control of the Community Junior College Board of Trustees. After August 15 had passed, the decision was made to delay the organization of the Council until January 1, 1969.

On that date the Council will be formally organized and will begin operation. It is a voluntary consortium. Each college pays a small fee which may come from its state allotment for faculty and program development funds. Each member college appoints a representative who serves as a member of the Council. An executive committee is selected from the Council--made up of five college representatives and an *ex officio* representative of the Division of Community Junior Colleges.

The budget for the first six months provides for a Staff Research Associate to direct the activities of the Council, for four Research Fellows, and for adequate secretarial help. Funds are also available for reports and investigation. During April - May 7, 1969, the activities will be evaluated and plans developed for the 1969-70 year.

The studies themselves will be centered around three general types:

1. Studies of general application involving all colleges participating in the council;
2. Studies of interest to all, but which may involve only a few institutions;
3. Studies which are conceived as model designs and which may be tested in one institution before being made available to other colleges.

The selection of the studies upon which priority is placed will be made by the Council staff. It is envisioned that one or two major studies will be attempted each year.

A second function of the IRC will be to collect, collate, and distribute existing studies and individual institutional studies to others. Many colleges are reinventing the wheel each year because they are unaware of the data another institution has gathered. In fact the first task assigned to the Council will be to collect, inventory, summarize, and disseminate results of existing research studies.

Among other things, however, emphasis will be given to such areas for study as:

1. Identification where possible of predictive factors for student growth;
2. Improvement of instruction through use of various techniques and aids;
3. Follow-up of students who leave before completing a program;
4. Improvement of basic skills;
5. Follow-up of students who complete their stated objective;

6. Improvement of faculty evaluation;
7. Student characteristics as may be related to instructional programs;
8. Definition of faculty responsibility;
9. Matching student abilities, interest, level of achievement, etc. with continued educational opportunity;
10. Measurement of effort of "general education";
11. Evaluation of occupational "success," and
12. A listing ad infinitum.

All of these studies should include part or all of the following design elements and characteristics:

1. Normative studies
2. Statements of statistical significance
3. Well formulated problems
4. Carefully discussed hypotheses
5. Well defined populations and randomly selected subjects
6. Data collection integrated with processing
7. Critical examination of results
8. Wide dissemination and continuing evaluation

These are our plans. How well we accomplish them, I'll be willing to discuss with you--maybe next year!!

MEASURING THE IMPACT OF COLLEGES ON STUDENTS--SOME APPROACHES TO THE PROBLEM

Dr. Robert E. Stoltz
Regional Director
College Entrance Examination Board

As I reviewed studies, in preparation for this discussion, I was struck by how difficult it is, not to obtain data, but to interpret them wisely. Or, to put it another way, how the same data can be subject to so many interpretations. Also, I suspect that many of the researchers delving into the problem of college impact have suffered from a form of unfettered optimism. Most of these researchers were, you see, employed by colleges and frequently were that noblest of creatures, the faculty member. It must have seemed somewhat ridiculous to be conducting research to demonstrate what should be obvious to all, that colleges do have an impact on students. Well, let me confess, as an old faculty type, that it is not so obvious, it is not very easy, in fact it is darned hard to do. Even worse, it is only a little short of the labors of Hercules to try and show what it is about the college that has produced the illusive impact, if and when you find it. Had I given this report aslittle as ten years ago, it could well have been the shortest talk on record at a professional meeting. At that stage, it would not have been hard to say that we don't know if there is an impact, if there is it isn't much, and it's anyone's guess what causes it. Today, only eleven or twelve years later, we are a bit more confident regarding impact, and we know some of the things that create impact in some college students sometimes.

Let me start off by imposing on you with another little story, this time a true one. In 1957 a student entered my office with a proposal for a master's thesis. He wanted to study the effect of four years of college on the Authoritarian attitude. He proposed to administer the F-scale to a group of freshmen and a group of seniors enrolled that fall in our university. He would look for mean score differences between the two groups. I asked him about controls, and he said he would select from his original groups two groups, one freshman and one senior, that he would somehow match on ability and earned grade point averages. Now as you can see, this is what we used to call a Type 2-D research proposal. That is, the kind of plan you get from feverish graduate students two days before the graduate school deadline for thesis proposals. I summoned all the control I could and launched into a fifteen minute lecture on the design and analysis problems inherent in what he proposed. When I paused to draw breath, he told me he had an appointment at the student union, and disappeared. I have seen little of him since. I recall that he finally did do a thesis. If I am not mistaken it had to do with the effect of food pellet size on the running time of hooded rats in a straight runway. In any event, I think both he and I were satisfied with the outcome of our little talk. The point of this story is that in this respect not much has changed in eleven years. When one wishes to study the impact of college on students, he is about to enter into an area that is a methodological morass. There have been many studies on the impact question, but, unfortunately, there are only a rather small number of these that are not open to suspicion or which do not pose vexing interpretative problems.

I have no desire to give, and you probably have little inclination to receive today, a short course in methodology. But if one wishes to measure impact, then at least a brief review of some of the major methodological problems is in order.

If one says he is interested in impact, then it follows that he is interested in change. That is, he will wish first to observe the individual at one point, prior to some treatment, which in this case will be the college experience or some aspect of it. The researcher then observes the individual or a similar individual at a later point in time and notes if a change in some particular aspect of the individual's behavior has taken place. Consequently, the analysis of impact is, in a sense, the treatment and analysis of change data.

It is also true that the question of college impact can be approached at a variety of levels.

1. First one can ask if the college-going experience in general, independent of kind or type of college, does in itself have an impact on individuals.
2. One can go further and ask if colleges differ among themselves in the kind of impact that they have or in the extent to which they have impact.
3. At another level, one can inquire into the extent to which such specific features of a college, such as peer groups, residence conditions, major fields of study, faculty orientation, or other aspects of the college environment have an impact on the student.
4. At still another level, one could ask if some students are more likely to be affected by the college experience

or by colleges of a particular type, than are other kinds of students.

In short, the full problem is that of determining in what ways are which students affected by which characteristics of which colleges. Most important then, are these capable of being devolved into a set of general propositions that could apply to colleges and students generally? Very few studies have attempted to look at something approaching the full multidimensional array of possibilities. Most studies have focused on elements along one or possibly two dimensions at best. As a consequence there are many gaps in our information. The job of writing a review of the area would not be easy, but, fortunately, that is not my task today. Instead, I will focus my remarks on a few of the problems inherent in making cogent analyses of any slice through this pie and comment on a few studies which seem rather good and inventive.

1. Since change is what we are interested in, then it seems obvious that some form of pre-test-post-test design would be used. With this I have no quarrel. Unfortunately, in some cases this has taken the form of putting two cross-sectional analyses back to back, rather than attempting to conduct a longitudinal study. The weaknesses of the cross-sectional approach are many, sufficiently so that it rarely would seem desirable to use it. On the other hand the longitudinal study, as it is sometimes applied may be little better. For example, measures on the same students when they were freshmen and later when they are seniors are frequently used. Since many students have dropped out of college during that period, the only students available for the comparison

are those freshmen who persisted for four years. Consequently, change data may only show the effect of dropping out of the institution. It is also possible that those students remaining in the institution are those most susceptible to the change agent. Even follow-up of the dropouts may not make interpretation easy, since the special efforts required to locate and enlist the cooperation and participation of the dropouts might make their responses so different, in a psychological sense, that they cannot be easily said to be equivalent to the data obtained from those remaining in the institution. Of the longitudinal designs, the panel approach has much to recommend it. Regardless of the basic design used, a frequently overlooked question is the psychological characteristics of the assessment instrument being used. As is well known in the area of achievement testing, even if the same instrument is used for both pre-and-post-test, it may not be, in fact, producing results that mean the same thing at both points in time.[1]

2. A rather frequent approach is to compare the average performance of one group with the average performance of another. In the longitudinal situation, this would be the same individuals at two points in time. Usually group means are compared. One problem here is that the measure of average change may mask the way in which individuals have changed. For example, in the study by Goldsen, 213 freshmen said the goal of basic general education was most important and later,

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[1] For a good illustration of the problem, see the study by Korn.

as juniors, 272 freshmen responded in the same way. This can be interpreted as a net change of 59 men. What this hides is that 83 of the original 213 shifted to some other category, and 142 who had originally endorsed something else moved into the category. Therefore, the net change of 59 men came about from the individual shifts of 225 men. In other situations--studies of change of major field--this recruiting-defecting problem should be most carefully watched.

Also, the number of individuals changing, plus the degree of change they may show, can produce similar interpretation problems. For example, a very few individuals can change a great deal, or a large number of individuals can change only slightly, and the resultant mean or overall shift can appear to be of the same order of magnitude. Obviously, these two situations are quite different and should be recognized as different. A similar problem can occur when a few individuals show large changes in one direction, while another group can shift in the opposite direction, which can, when the mean change is considered, be interpreted as indicating that no change has occurred. The case is strong here for making the individual the basic unit of analysis and for the researcher to consider not only how means shift, but how the patterns of change might be described.

3. As I said, we are concerned with the phenomenon of change and you must deal, therefore, with change scores. Unfortunately, this is not quite the same as dealing with raw scores.

A. Difference scores are usually not very reliable. And differences of differences are even less reliable.

B. The problem of regression effects - extreme scores on repeated testing tend to move toward the mean of the group.

C. Floor and ceiling effects - not just on instruments alone, but influenced as well by interaction with treatment effects to change actual or obtainable ceiling.

D. Watch out when correlating change scores with an initial measure! There is a tendency for negativity in the resultant correlation to be spuriously introduced.

E. Means often attract the greatest attention, but dispersions (variances) may be of even greater importance. Means may rise, fall, or not move, but spread of scores or curve shape could alter dramatically and importantly.

4. A number of studies have concentrated on showing that change in some variable occurs as one moves through college. Frequently, this change is interpreted as evidence of the impact of college. Unfortunately, this is not in itself sufficient. One could very well argue that the age, socioeconomic, or sex group was going through the same change process and that it is unwarranted to give credit for the change to the college experience alone. This brings us to the problem of the "control" or nontreatment group which should be present if we are to defend the notion that some college characteristic was the change agent. Most desirable would be a group with no college exposure. Unfortunately, this group may differ radically from the college

goers, not only in terms of their original position on the characteristic of interest, but in other respects, some of which may be correlated with the change process or impact. Obtaining an adequate control group is not easy, and forced designs, where individuals are deliberately excluded from following a desired course of action, are often equally undesirable. The key seems to be to define the impact of concern carefully prior to picking a control group, so that as relevant a control group can be found as possible.

Before leaving this one, let me be quick to point out that no change, that is no change from one time point to another, may be a most significant impact of the college experience. But to find this, one must have a group which did not have the college experience which is evidencing change.

5. In some cases the total group is stratified into subgroups and comparisons made between subgroups which might have had differential exposure or differed in their supposed predisposition to the change agents. Along with the problems mentioned earlier, we can now run into another design hangup. That is the tendency of those reporting to be defensive. A good example can be found in the study of Fosmire, where youngsters were in general agreement with those majoring in other fields about the difficulty of work in the various fields, with the exception of the one in which they were enrolled which they usually judged to be more difficult.

6. Students' input effects are frequently overlooked, or treated lightly in comparing the impact of different colleges. The

researcher must be quite sensitive to the extent to which the characteristics of students at the various colleges differ prior to entry. Colleges which receive student bodies that differ in important ways, may have quite varied experiences in changing these students.

A. Students select colleges, more than colleges select students. It is quite conceivable, and there is some evidence that confirms this, that students entering some colleges are more susceptible to the changes that the college is able to produce, than are students at other institutions.

B. There is also the possibility that the self-fulfilling prophecy is at work. Students may select a college, and even if they find little in the college that is affecting a desired change, proceed in their own to create situations which make the change possible. If we were not on the lookout for this possibility, we might be crediting the institution with doing more than simply providing a physical space in which students can conduct their own magic.

7. And then there is the matter of timing. How long does it take for a change to be effected? Does the observed change persist for a period of time? When is the change most likely to occur? When is it best for a change agent to function? Unfortunately, not enough studies have focused on timing questions. I say unfortunate because studies of this sort might be among those most desired by the current crop of education administrators. For example, if we wished to have

students leave us with an increased value toward intellectual pursuits, it is important to know not only what we should do, but when we should do it. Some studies suggest that the first months of college are the most critical in promoting change and that thereafter change may continue to occur, but at a reduced rate. We need to know if this is the case, or if it is true, but only for some phenomenon and not others. This seems to me to be a wide open area for research, and one well worth pursuing.

8. In general, it seems desirable to use instruments that can be related to other studies. There exist now several devices for measuring college environments. There are a number of widely used devices for describing student input characteristics. I am not arguing that one should design his research around existing instruments, but when possible it would aid our understanding greatly if preference could be given to instruments used in other studies. If not instruments, then perhaps items which might enhance our ability to make comparisons across studies. For example, it might be highly desirable to use an item for assessing family income that has been used in other studies of similar populations.
9. I cannot stress enough the importance of a good literature search before doing a study. And not just like the literature associated with the impact under consideration, but the literature of change study methodology.
10. In some studies it would appear that we are dealing with a problem of the "critical-mass" variety. That is to say, when we have only a bit of the treatment present, or small size in

a critical group, little in the way of change is observed. It seems, though, that when this treatment is prolonged, or when the critical group is enlarged, change may then take place or assume an order of magnitude where it can be measured. I suspect that a great deal might be learned from studies which attempted to learn just what the "critical-mass" might be before, or if, we are to observe change in significant groups of students. In a similar way, we may be observing a phenomenon which does not change gradually, or continuously, but rather changes by what might approximate step functions. Unfortunately, not many designs have been adequate to deal with this potential problem, or to suggest where this might be occurring.

Let me close this section by saying that I know of no perfect design. However, there are some approaches of relatively recent origin that deserve your attention.[1] Let me mention just one here. Astin has proposed what is called an input-output design. It amounts to estimating from correlated characteristics the degree of change which might take place in a variable. These estimated change scores are then subtracted from the observed change scores and the resultant, or residual change scores are then dealt with. For complex studies, in which many student input and college characteristic variables are involved, this approach has much to recommend it. Unfortunately, this approach too has its problems.[2]

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[1] See the references at the end of the paper.

[2] For a look at some of these difficulties, see the article by Richards.

In closing, let me make a few general comments:

1. A rather convincing case can be made for the longitudinal study, particularly that type employing the panel approach, all members of which are followed over the same time period. Also, it seems extremely wise to provide for the kind of assessment and follow-up that will permit the individual, rather than the group, to be the unit of analysis. Unless this is done, such problems as recruitment and defection, appraisal of shifts of individual position, or degree of change cannot be dealt with adequately.
    - A. Make good effort to get comparison groups, but most important get groups that are related to the impact in question in relevant ways, not just non-students.
    - B. Measures of college characteristics are now available and have already evidenced their value. While descriptions of the total institutions are important, equally important are assessments which search for characteristics of significant subgroups within the total college community, such as those associated with major field, peer group, and the like.
    - C. The more valuable studies often employ data from several colleges rather than just one. This enables us to make some educated guesses as to just how generalizable the impact is and, in conjunction with college characteristic data, some hunches as to why.
2. I would suggest that not enough has been done to consider the perception or beliefs that a student holds, regarding the college experience or what it will be, prior to his entering the institution. Differences among students on these characteristics may be critical to a clear understanding of the collegiate change process.

3. At the risk of offending some of my colleagues, I am of the opinion that far too much of our knowledge regarding the impact of college on students has come from student self reports on survey and questionnaire assessment devices. This is understandable, and in and of itself not undesirable. I would submit, however, that it would be very nice to see more studies of college impact that used as their evidence of change some behavioral modifications other than self reports of the student. The previous studies of major field change are good illustrations of what I have in mind. I suspect there are many that might be done and I think all of us would welcome them. A look at the work on unobtrusive measures might be particularly in order here.
4. Finally, you could by now have the impression that I believe that the only worthwhile studies would be those involving large research organizations capable of carrying out massive studies involving thousands of students in large numbers of colleges. Such research would need a large directorate, huge funding, and a sizable number of graduate students. If I have given you that impression, let me correct it. These extensive studies by large research units are very important, but that way, or rather their way, is not the only way to skin this particular cat. I suspect that through cooperative planning, institutional researchers at several colleges could lay out a plan for a piece of research that would involve them all in gathering and analyzing the data. Working together in a cooperative fashion might help each of them acquire information relative to his own problems and together they might be able to treat some issues that none alone could deal with adequately. In this area, the impact of colleges on students, the

opportunities for cooperative research efforts are great. Perhaps doing something of this sort is a matter that this group might wish to consider. I would urge you to do so, if you can. The frustrations are there in abundance, but so are the challenges and the opportunities for making significant contributions.

References

Astin, A. W. "Differential College Effects on the Motivation of Talented Students to Obtain the Ph.D.," *Journal of Educational Psychology*, LIV (February, 1963), 63-71.

__________. "Further Validation of the Environmental Assessment Technique," *Journal of Educational Psychology*, LIV (August, 1963), 217-26.

__________. "Common Behavior Patterns as a Basis for Classification of Students." Paper read at the 50th Annual Meeting of the American Educational Research Association, 1966.

__________ and Panos, R. J. "A National Research Data Bank for Higher Education," *Educational Record*, XLVII (Winter, 1966), 5-17.

Fosmire, F. R. "The Role of Ego Defense in Academic Reputations," *Journal of Social Psychology*, XLIX (February, 1959), 41-45.

Goldsen, Rose K. *Report on the Cornell Student Body*. Prepared by the Social Science Research Center. Cornell University, 1951. (Mimeographed.)

Gurin, Patricia and Katz, D. *Motivation and Aspiration in the Negro College*. U. S. Department of Health, Education, and Welfare Project No. 5-0787. Ann Arbor, Michigan: Institute for Social Research, University of Michigan, 1966.

Huntley, C. W. "Changes in Study of Values Scores During the Four Years of College," *Genetic Psychology Monographs*, LXXI (May, 1965), 349-83.

Korn, H. A. "Personality Scale Changes From the Freshman to the Senior Year." *Growth and Constraint in College Students: A Study of the Varieties of Psychological Development*, Edited by J. Katz. U. S. Department of Health, Education, and Welfare Project No. 5-0799. Stanford, California: Institute for the Study of Human Problems, Stanford University, 1967, 122-55.

Newcomb, T. M., Koenig, Kathryn E., Flacks, R., and Warwick, D. P. *Persistence and Change: Bennington College and Its Students After Twenty-five Years*. New York: John Wiley and Sons, 1967.

Nichols, R. C. *Personality Change and the College*. NMSC Research Reports, Vol. I Evanston, Illinois: National Merit Scholarship Corporation, 1965.

Richards, J. M., Jr. "A Simple Analytic Model for College Effects." *School Review*, LXXIV (Winter, 1966), 380-92.

Siegel, Alberta E., and Siegel, S. "Reference Groups, Membership Groups, and Attitude Change." *Journal of Abnormal and Social Psychology*, LV (1957), 360-64.

Skager, R., Holland, J. L., and Braskamp, L. A. Changes in Self-Ratings and Life Goals Among Students at Colleges with Different Characteristics. ACT Research Reports, No. 14. Iowa City, Iowa: American College Testing Program, 1966.

Trent, J. W., and Medsker, L. L. Beyond High School: A Study of 10,000 High School Graduates. Berkeley, California: Center for Research and Development in Higher Education, University of California, 1967.

Wallace, W. L. Peer Groups and Student Achievement: the College Campus and Its Students. Report No. 91. Chicago: National Opinion Research Center, University of Chicago, 1963.

____________. "Institutional and Life-Cycle Socialization of College Freshmen." American Journal of Sociology, LXX (November, 1964), 303-18.

____________. "Peer Influences and Undergraduates' Aspirations for Graduate Study." Sociology of Education, XXXVIII (Fall, 1965), 375-92.

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